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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,524	04/15/2004	Hirotoshi Mizota	251951US0DIV	6589

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EXAMINER	
PEZZUTO, HELEN LEE	
ART UNIT	**PAPER NUMBER**
1713	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,524	MIZOTA ET AL.	
	Examiner	Art Unit	
	Tatyana Zalukaeva	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9 and 11-13* is/are rejected.

7)☒ Claim(s) *2 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *04/2004 AND 07/2004*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence(s) of the specification or in an application data sheet by identifying the prior application by application number (37 CFR 1.78(a)(2) and (a)(5)), and the continuity data should be updated, since the patent on the parent application has been issued.

Interpretation of Claims

2. Claim 1 contains three formulas establishing relationship between the temperature of the process and the concentration of the initiator presented by the formula (II). If in this formula the temperature B(K) is substituted for its allowed value, for example, 150C=423K, then the equation (I) becomes:

Ln (A) ≤ 105.4-4526/423

Ln(A) ≤ 105.4-106.6

A≤ 0.18, i.e. the concentration of initiator that is dimethyl azobis-2-methylpropionate ≤ 0.18 mol /mol of monomer.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumagai et al (U.S. 5,728793).

Kumagai discloses a process for producing a methacrylate polymer, wherein a monomer feed composed of methyl methacrylate or a mixture of at least 70 weight % of methyl methacrylate and not more than 30 weight % of one or more vinyl monomers copolymerizable with methyl methacrylate is continuously polymerized in a substantially perfect mixing state to give a polymer composition having a polymer content of 40-70% by weight in a continuous manner, which comprises carrying out polymerization in the reactor which is filled up with the polymer composition leaving substantially no gas phase therein and which is maintained in a thermally insulated state allowing substantially no exchange of heat with the external environment at a polymerization temperature of 120-180 C. with an average residence time of 15 minutes to 2 hours using a radical initiator having a half-life of not more than 1 minute at the polymerization temperature at a concentration which is equal to C (mol/100 g monomer) satisfying the relation in the abstract and col.3, lines 20-40. Dimethyl 2,2,-azobis (2 methylpropionate) is named as an initiator in col.7, lines 23, and dimethyl 2,2,-azobisisobutyrate is in line 21. These are the species of the generically claimed formula (II) of the instant claims. The concentration of polymerization initiator calculated by the formula (2) satisfies the requirement to be 0.18 or less mol of initiator per mol of monomer(s). This satisfies the requirements of claim1. Monomers of claim 3 are taught in col.4, lines 22-47. The limitation of claim 4 for "at least 80% of methyl methacrylate" is disclosed in col.4, line

25. The limitations of claims 5-7 are clearly met by the disclosure of Fig. 1 and description in col.10, lines 13-47, and Example 1 in col.11, line 20 through col.12, line 22. The conversion in Example 1 is exemplified as 45%, which meets the limitations of claim 8 on the polymer content.

With regard to claim 9, Kumagai teaches that the chain transfer agent that can be used includes alkylmercaptans such as propyl mercaptan, butyl mercaptan, hexyl mercaptan, octyl mercaptan, 2-ethylhexyl mercaptan, dodecyl mercaptan, etc (see col.9, lines 13-20).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 11, 12 and 13 are rejected under 35 U.S.C. 102 (b) as being anticipated or in the alternative under 35 USC 103(a) as being unpatentable over Uozu et al (U.S. 5,287,222)

Uozu discloses a method of making optical fibers, light focusing optical fibers (col.1, lines 5-15). In the method, the polymer of ***polymehyl methacrylate*** and 3 or more kinds of unhardened liquid substances comprising other polymers, which have mutually different refractive indices after hardening and which have a viscosity of 10^3 - 10^8 poise in the unhardened state; taking these unhardened liquid substances in the order of the successively decreasing refractive index going from the center to the outer surface and layering them in a concentric circular shape by, for example, supplying them to a multilayer ***composite spinning nozzle*** and forming them into an unhardened state strand fiber (col. 5, lines 37-60). This meets the limitations of the process of claim 11. With regard to claim 12, Uozu teaches that type optical transmission medium is used in which the refractive index becomes continuously smaller going from the center to the outer periphery within the cross-section of the optical transmission medium and in which there is an angled gradient in the distribution of the refractive index (col.1, lines 29-39, col.5, lines 42-47).

The claims 11 and 12 are directed to a process, in this process, the product-by(other)process is involved, and therefore, the rejection is made in the sense of ***In re Thorpe***, 227 USPQ 964 (CAFC 1985), that defines patentability of the product by the product per se, not by the process of its making or ***In re Brown***, 173 USPQ 685 (CCPA 1972), the Court of Customs and Patent Appeals (CCPA) explicitly approved the 102/103 rejection of a product-by-process claim over a reference which showed a product which appeared to be identical or only slightly different from the claimed product.

Because of the nature of product-by process claims, the Examiner cannot ordinarily focus on the precise difference between the claimed product and the disclosed product..

With regard to claim 13, it is noted that the multicomponent spinning nozzle processing of two polymers, one of which is methyl methacrylate is disclosed by Uozu, therefore, one who performs the steps of a process must necessarily produce all of its advantages. Mere recitation of a newly discovered property or **function** that is inherently possessed by the things or steps in the prior art does not cause a claim drawn to those things to distinguish over the prior art. Leinoff v. Louis Milona & Sons, Inc. 220 USPQ 845 (CAFC 1984).

Allowable Subject Matter

9. Claims 2 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2 is directed to a specific solution polymerization, wherein the concentration of initiator and concentration of solvent are specifically dependent on the temperature of the process. Such combination with the previously recited (claim 1) process is not disclosed or suggested in the prior art references that all teach bulk polymerization.

Claim 5 is directed to the purification step of volatiles that occurs after devolatilization step with the use of specific catalysts and in the presence of molecular oxygen. Such extension of polymerization process is neither disclosed nor suggested in the prior art references.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (571) 272-1115. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1305. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tatyana Zalukaeva
Primary Examiner
Art Unit 1713

June 24, 2005